

Biological Cybernetics

Communication and Control in Organisms and Automata

Nachrichtenübertragung, Nachrichtenverarbeitung, Steuerung
und Regelung in Organismen und in Automaten

Editors

H. B. Barlow, Cambridge/Cambs. · O. Creutzfeldt, Göttingen

B. Hassenstein, Freiburg i. Br. · W. D. Keidel, Erlangen

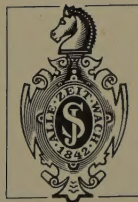
I. Kohler, Innsbruck · K. Küpfmüller, Darmstadt

D. M. MacKay, Keele/Staffs. · H. Mittelstaedt, Seewiesen/Obb.

W. Reichardt, Tübingen (Editor-in-Chief) · W. A. Rosenblith, Cambridge/Mass.

J. F. Schouten, Eindhoven · D. Varjú, Tübingen

Volume 20 1975



Springer-Verlag Berlin Heidelberg New York

The copyright for all languages and countries, including the right to reproduce by photographic or other means is transferred to the publishers as soon as the manuscript is accepted and published by them.

The use of registered names, trade-marks, etc. in this journal does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Springer-Verlag Berlin-Heidelberg-New York. Printed in Germany by Brühlsche Universitätsdruckerei, Gießen

Copyright © by Springer-Verlag Berlin, Heidelberg 1975

Contents

- Baertschi, A.J., Johnson, R.N., Hanna, G.R.: A Theoretical and Experimental Determination of Vestibular Dynamics in Caloric Stimulation 175
- Barbi, M., Carelli, V., Frediani, C., Petracchi, D.: The Self-inhibited Leaky Integrator: Transfer Functions and Steady State Relations 51
- Başar, E., Gönder, A., Özesmi, Ç., Ugan, P.: Dynamics of Brain Rhythmic and Evoked Potentials. I. Some Computational Methods for the Analysis of Electrical Signals from the Brain 137
- Başar, E., Gönder, A., Özesmi, Ç., Ugan, P.: Dynamics of Brain Rhythmic and Evoked Potentials. II. Studies in the Auditory Pathway, Reticular Formation, and Hippocampus during the Wake Stage 145
- Başar, E., Gönder, A., Özesmi, Ç., Ugan, P.: Dynamics of Brain Rhythmic and Evoked Potentials. III. Studies in the Auditory Pathway, Reticular Formation, and Hippocampus during Sleep 161
- Ellias, S.A., Grossberg, S.: Pattern Formation, Contrast Control, and Oscillations in the Short Term Memory of Shunting On-Center Off-Surround Networks 69
- Fukurotani, K., Hara, K.-I.: A Dynamic Model of the Receptive Field of L-Cells in the Carp Retina 1
- Fukushima, K.: Cognitron: A Self-organizing Multilayered Neural Network 121
- Han, T.S.: An Intrinsic Structure of the Auditory Sensation Space with Special Reference to the Equal-Sensation Contours 27
- Hara, K.-I., Takabayashi, A.: A Dynamic Model of Retinal Cells in the Vertebrate Retina 61
- Heide, G.: Properties of a Motor Output System Involved in the Optomotor Response in Flies 99
- Henning, K., Kuchen, B.: Einfluß unterschiedlicher Störsignale auf Mensch-Maschine-Regelkreise (Influence of Different Disturbances on Man-Machine-Systems 187
- Holden, A.V.: A Note on Convolution and Stable Distributions in the Nervous System 171
- Krüger, J., Fischer, B.: Symmetry between the Visual B- and D-Systems and Equivalence of Center and Surround: Studies of Light Increment and Decrement in Retinal and Geniculate Neurons of the Cat 223
- Laurig, W., Sauernheimer, W.†: Simulation eines antagonistischen Muskelsystems für den Sonderfall ermüdender isometrischer Muskelarbeit (Simulation of an Antagonistic Muscle System Particularly Considering Isometric Contractions Leading to Muscular Fatigue) 17
- Nilsson, H.G.: Model of Discharge Patterns of Units in the Cochlear Nucleus in Response to Steady State and Time-Varying Sounds 113
- Schlegel, P.: Elektroortung bei schwach elektrischen Fischen: Verzerrungen des elektrischen Feldes von *Gymnotus carapo* und *Gnathonemus petersii* durch Gegenstände und ihre Wirkungen auf afferente Aktivitäten (Electroorientation in Weakly Electric Fish: A Study of Field Distortions Caused by Objects in *Gymnotus carapo* and *Gnathonemus petersii* and Recordings from Afferent Fibers in *G. carapo*) 197
- Shiavi, R., Negin, M.: Multivariate Analysis of Simultaneously Active Motor Units in Human Skeletal Muscle 9
- Shimozawa, T.: Response Entrainment of Movement Fibers in the Optic Tract of Crayfish 213
- Wehrhahn, Chr., Reichardt, W.: Visually Induced Height Orientation of the Fly *Musca domestica* 37

